MONTHLY WEATHER REVIEW.

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INTRODUCTION.

This REVIEW contains a general summary of the meteorological conditions which prevailed over the United States and Canada during May, 1886, based upon the reports from the regular and voluntary observers of the Signal Service and from co-operating state weather services.

Descriptions of the storms which occurred over the north Atlantic Ocean during the month are also given, and their approximate paths shown on chart i. In tracing the centres of the paths of these storms data from the reports of two hundred and four vessels have been used.

Unusually large masses of ice, both field and bergs, have been observed in the vicinity of Cape Breton and Newfoundland during the month.

On chart i are shown the approximate paths of eleven areas of low pressure which have been traced over the United States and British America. The average number of areas of low pressure for May during the last twelve years is 8.4.

The most severe local storms of the month occurred on the 11th, 12th, and 13th, during the prevalence of low area number v.

Over the country to the westward of the eighty-fifth meridian the monthly precipitation was much below the average, while in the Ohio Valley, middle Atlantic states, and over a part of the south Atlantic states there has been a marked excess.

The mean temperature has been normal or slightly below over the greater part of the country east of the Mississippi River; to the westward of the Mississippi the mean temperature has averaged from 2° to 6° above the normal, except in California, where it was about normal.

In this REVIEW will be found a tabulated statement of tornadoes, &c., prepared by Lieut. J. P. Finley, of the Signal Corps.

Chart vi exhibits curves representing results of observations, with the electrometer, upon atmospheric electricity, and under that head will be found notes referring to the same.

In the preparation of this REVIEW the following data, received up to June 20, 1886, have been used, viz., the regular tri-daily weather-charts, containing data of simultaneous observations taken at one hundred and thirty-three Signal Service stations and twenty-two Canadian stations, as telegraphed to this office; one hundred and sixty monthly journals; one hundred and fifty-seven monthly means from the former, and twenty-two monthly means from the latter; two hundred and eighty-seven monthly registers from voluntary observers; sixty-four monthly registers from United States Army post surgeons; marine records; international simultaneous observations; marine reports through the co-operation of the "New York Herald Weather Service;" abstracts of ships' logs furnished by the publishers of "The New York Maritime Register;" monthly weather reports from the New England Meteorological Society, and from the local weather services of Alabama, Georgia, Indiana, Kansas, Minnesota, Missouri, Nebraska, Ohio, and Tennessee, and of the Central Pacific Railway Company; trustworthy newspaper extracts, and special reports.

ATMOSPHERIC PRESSURE.

[*Expressed in inches and hundredths.*]

The distribution of mean atmospheric pressure for May, 1886, determined from the tri-daily telegraphic observations of the Signal Service, is shown by isobarometric lines on chart ii.

It will be seen from this chart that the pressure is greatest in the Pacific coast region and in Florida. The isobar for 30.05 indicates the region of greatest pressure and is traced along the Pacific coast. The isobar of 29.85 indicates the regions of least mean pressure; there are two of these areas, one in Arizona and New Mexico, and the other in the Saint Lawrence Valley. From New Mexico the pressure gradually increases toward the east until in Florida it reaches 30.00.

As compared with the mean pressure of the preceding month a decided decrease is shown over the whole country, except in the Rocky Mountain region and westward to the Pacific, where there was an increase, the greatest being .08 in Washington Territory. The deficiency was greatest in New England and the Saint Lawrence Valley, the mean pressure for these regions falling 0.25 below that of April. From Montana southward to Arizona, New Mexico, and Texas, the pressure differs very little from that for April.

The departures from the normal pressure at the various Signal Service stations are given in the tables of miscellaneous meteorological data, and on chart iv they are shown by lines connecting points of equal departure. The pressure for May was about normal in Washington Territory and Oregon, and on a line extending from the boundary of the United States and the British possession, at the meridian of one hundred and ten, southeastward to Florida. From this line southwestward the pressure rises above the normal, reaching 0.10 in New Mexico and Arizona, and falls below in all regions lying to the east, New England being 0.09 below the normal pressure for May.

BAROMETRIC RANGES.

The monthly barometric ranges at the various Signal Service stations are also shown in the tables of miscellaneous data; they were greatest at stations in the Lake region, New England, and along the Atlantic coast, and least in California, Arizona, New Mexico, and Texas.

The following are some of the extreme monthly ranges:

Greatest.	Inch.	Least.	Inch.
Eastport, Maine	0.99	San Diego, California	0.25
Portland, Maine	0.91	Los Angeles, California	0.26
Cape Hatteras, North Carolina	0.91	Key West, Florida	0.27
Boston, Massachusetts	0.89	Fort Apache, Arizona	0.29
Kitty Hawk, North Carolina	0.89	Prescott, Arizona	0.29
Mount Washington, New Hampshire	0.89	Cedar Keys, Florida	0.34
Chincoteague, Virginia	0.88	Sanford, Florida	0.36

AREAS OF HIGH PRESSURE.

Eight areas of high pressure appeared within the limits of, or near, the stations of observation during the month of May. Of the eight areas traced, but one pursued the normal southeasterly course. Three of these areas passed eastward north of the Lake region, and four were first observed on the Pacific

coast, and of these four, two passed to the east of the Mississippi valley. The general movement of these areas, after reaching the Atlantic coast, was slightly to the north of east, and on the Pacific coast the movement was directly northward, while the area remained near the coast line.

I.—This area was central north of Lake Superior on the morning of the 1st; it moved directly southward over the upper lake region, covering the central valleys during the 2d and 3d, attended by fair or clear weather throughout all districts east of the Rocky Mountains. It was central in eastern Tennessee on the morning of the 3d, and on the 4th and 5th the movement was to the southeast, passing off the Atlantic coast. This was an extended area of high pressure, and was well-defined, but the gradient was slight.

II.—This area of high pressure extended over the north Pacific on the morning of the 1st, and it remained almost stationary until the morning of the 2d, after which it moved to the eastward north of the stations of observation on the morning of the 6th, and was probably central off Manitoba. It moved slowly eastward north of the Lake region during the 7th, and was central northeast of New England on the morning of the 8th. The highest reading of the barometer observed during the transit of this area of high pressure was 30.33, on the north Pacific coast on the morning of the 1st. During the movement eastward over the continent the pressure within this area was generally below 30.20. The easterly movement, after crossing the Rocky mountains, was attended by an area of low pressure which moved eastward along the thirty-fifth parallel. After reaching the Atlantic coast this area and the attending low area apparently inclined to the northeastward.

III.—This area followed quickly in rear of the high area previously described, advancing southeastwardly from the Hudson Bay region, and was central north of Ontario at midnight of the 9th, extending southeastward and separating low areas of considerable energy then central northeast of New England, in the Lake region, and north of Minnesota. The high area moved eastward over New England and Nova Scotia on the 10th and 11th, the pressure increasing slowly with the easterly movement. On the morning of the 12th it was last observed east of Nova Scotia.

IV.—This high area appeared on the northern California coast during the 11th, and moved slowly northward to the west of the coast until the afternoon of the 15th, when it was central over Washington Territory, and extended east and southward over the northern and middle plateau regions. The maximum pressure of 30.36 occurred on the afternoon of the 15th at Fort Canby, Washington Territory. The high area moved east of the coast line, and was central over the northern plateau region on the morning of the 16th, after which it disappeared by a gradual decrease of pressure, without passing to the eastward of the Rocky Mountains.

V.—Number v formed over Texas on the 15th, bounded by isobars of 30.1 and 30.2. It moved northeastward and covered the entire Mississippi, Ohio, and lower Missouri valleys on the morning of the 16th, the pressure having increased slightly during the northeasterly movement. This increase continued during the 16th and 17th while this area was moving eastward over the Lake region and middle Atlantic states. The barometer was generally above 30.3 near the centre of this area when it passed east of the Atlantic coast.

VI.—This was a slight area of high pressure which appeared in northern Dakota on the 19th, when areas of low pressure were observed to the east, west, and south of it. On the morning of the 20th this high area had reached the upper lake region, and the areas of low pressure referred to were central, respectively, in the lower Saint Lawrence Valley, east Gulf states, and north of Dakota. The easterly movement continued during the 20th, the area passing over the upper Saint Lawrence Valley, where it disappeared.

VII.—Number vii was first observed on the north Pacific coast on the morning of the 20th; it passed first to the northeastward over Washington Territory and thence southeastward, crossing the Rocky Mountains, and was central in eastern Colorado on the morning of the 23d. It moved northeastward from the central Rocky Mountain region during the 23d and 24th, extending over the central valleys; it was central north of Minnesota on the morning of the 24th, in eastern Iowa on the morning of the 25th, and in eastern Tennessee on the morning of the 26th, after which its centre could not be located.

VIII.—This area apparently advanced from the Pacific and was observed on the central California coast at midnight of the 26th. It extended over the Pacific coast states and the plateau regions during the 27th, the centre apparently moving directly northward until the afternoon of the 28th, when it disappeared to the north of Washington Territory. The reports for the succeeding days of the month indicate that this area moved southward and was again central off the north Pacific coast at the close of the month.

AREAS OF LOW PRESSURE.

Eleven areas of low pressure have been traced on the tri-daily weather charts during the month of May. Five of the areas so traced passed eastward over British America, causing but slight changes in the weather conditions within the limits of the United States. Two storms, of considerable energy, apparently developed on the Atlantic coast, and one storm, also of considerable energy, after reaching the Mississippi Valley separated into several minor disturbances, which disappeared before reaching the coast. The tracks of the areas of low pressure traced are generally to the north of the mean storm-tracks for May, and the direction of movement on the Atlantic coast is more northerly than usual.

The following table shows the latitude and longitude in which each area was first and last observed, and the average rate of movement in miles per hour:

Areas of low pressure.	First observed.		Last observed.		Average velocity in miles per hour.
	Lat. N.	Long. W.	Lat. N.	Long. W.	
	° ′	° ′	° ′	° ′	
No. I	51 00	96 00	48 00	63 00	27.0
II	36 00	100 00	48 00	58 00	27.0
III	43 00	102 00	38 00	74 00	24.0
IV	53 00	105 00	50 00	87 00	20.0
V	48 00	104 00	42 00	89 00	30.0
VI	54 00	100 00	50 00	65 00	31.0
VII	30 00	89 00	32 00	86 00	8.0
VIII	54 00	107 00	50 00	61 00	30.0
IX	53 00	117 00	51 00	82 00	28.0
X	43 00	69 00	51 00	68 00	15.0
XI	53 00	98 00	52 00	66 00	33.0

Average hourly velocity, 24.8 miles.

I.—On the afternoon of the 3d this area of low pressure was first observed north of Minnesota; it had moved southeastward over Lake Superior by the morning of the 4th, attended by rains in the northwest and upper lake region, and severe local storms in the lower Missouri valley, there being, at that report, a secondary low area central over Kansas. This storm moved almost directly eastward from Lake Superior during the 4th, and was central near Montreal, Province of Quebec, on the morning of the 5th. During its advance the barometer fell below 29.60 near the centre of disturbance, but it rose slightly after passing to the east of the Saint Lawrence Valley. The course changed to the north of east after reaching the coast line, and it was last located as central over the Gulf of Saint Lawrence.

II.—This area of low pressure has been clearly traced from northern Texas from the successive tri-daily reports after May 5th, but previous reports indicate that it originated to the west of the Rocky Mountains, and that it probably passed northward over the southern plateau region during the earlier days of the month. It moved directly east along the thirty-fifth parallel, increasing in energy and attended by heavy rains and severe local storms at stations near the centre of disturbance. After reaching the eastern part of South Carolina the

course changed to the northeast, and the storm passed along the middle Atlantic and New England coasts during the 8th and 9th, causing severe gales first from the northeast and afterwards from the northwest. It passed to the east of Nova Scotia, causing brisk and high winds and very heavy rains in the Maritime Provinces. The course apparently became more northerly after the centre reached the vicinity of Halifax, Nova Scotia.

III.—The tri-daily reports received during the 7th and 8th indicated that an area of low pressure was forming over the Rocky Mountain regions, and on the morning of the 8th the centre of this disturbance was approximately located in the southwestern part of Dakota. It moved southeastward, extending over Nebraska and Kansas; between the afternoon and midnight reports of the 8th it moved in a southwesterly direction, and was central in western Kansas at midnight of the 8th. During the 9th it moved eastward, the centre passing over northern Kansas, southeastern Nebraska, and southern Iowa, the barometer falling to 29.39 at Des Moines, Iowa, at 3 p. m. of the 9th. This storm reached its maximum energy, accompanied by very heavy rains, severe local storms and tornadoes, during its transit over Iowa and eastern Kansas. After passing over southern Illinois and Indiana during the 10th it became a slight disturbance, losing its cyclonic form completely as it passed over the lower lake region, and it could only be traced as a feeble depression passing over the middle Atlantic states and off the middle Atlantic coast on the 11th.

IV.—This storm was at no time within the limits of the stations of observation. It appeared north of Montana at midnight of the 9th, and moved eastward, inclining slightly southward, being near to, and north of, Fort Garry, Manitoba, at midnight of the 10th, when the barometer was 29.40. The preceding report showed a still lower barometer reading of 29.31 at Minnedosa, with high west and southwest winds. This storm developed great energy while moving from the Rocky Mountains eastward over Manitoba, and it was preceded by strong southerly and followed by strong northerly winds, until its centre reached the vicinity of Lake Superior. It disappeared during the 12th without causing any marked disturbance over the region east of the Mississippi, and it probably moved northeastward over the Hudson Bay region.

V.—Number v was observed in the central Rocky Mountain region on the afternoon of the 11th, when it extended from Montana and Dakota southward to Texas, the centre of the depression being near Deadwood, Dakota. Previous to the development of this depression an area of low pressure was observed in eastern Colorado on the morning of the 10th. This secondary depression moved slowly to the southeastward until the morning of the 11th, the movement being readily traced by the direction of the winds within the slight barometric depression. After the development of number vi to the northward, these depressions united in western Missouri. Very heavy rains and severe local storms occurred during the 11th and 12th when this disturbance was moving eastward over Missouri, Iowa, and Illinois, and the heavy rains extended eastward over the northern states during the 12th and 13th. The area of low pressure, after reaching northern Illinois, divided into several small depressions, the movements of which are not traced on chart i, as they had disappeared after the second or third reports.

The following reports of severe local storms and tornadoes, which occurred during the prevalence of this low area, have been received:

Warrensburg, Johnson county, Missouri: about noon of the 11th a heavy thunder-storm, accompanied by hail and a furious gale, occurred at this place. The storm came from the northwest, demolishing fences and trees and damaging buildings. In the country to the east of this town wheat was greatly injured by hail, which was driven with much force by the high wind. At Odessa, twenty-five miles northwest of here, four churches were demolished.

Evansville, Vanderburgh county, Indiana: a very severe thunder-storm, attended by violent wind, occurred on the afternoon of the 11th. The African Baptist church, a large brick building, was thrown down; the upper portion of a store was wrecked; tin roofs were stripped from a number of houses, allowing the rain to do great damage to their contents; fences, trees, and chimneys were blown down by the hundreds; steamboats, tugs, and other craft in the river weathered the gale with difficulty and suffered considerable damage.

Peru, Miami county, Indiana: trees were uprooted, houses unroofed, and wheat blown down by the storm of the 11th. A large amount of stock is reported to have been killed by lightning.

Leavenworth, Kansas: a heavy thunder-storm began at 10.30 a. m. and continued until 1.10 p. m. of the 11th. This storm was the most disastrous that has occurred in the vicinity for years. At 12.20 p. m. the rain began to fall in great quantities, the wind increased rapidly in force and soon acquired a velocity of forty-five miles per hour, which continued for five minutes; cellars were flooded in an incredibly short time, and trees, fences, and sign-boards blown down. The iron ventilators of the Union depot were blown away; the roof of the market house was lifted from the building and thrown on several houses, damaging them to the extent of many thousand dollars. The rainfall was very heavy, 1.80 inches falling in fifty minutes. This storm prevailed throughout this entire section of country, several of the adjacent towns reporting serious damages.

Sedalia, Missouri: soon after noon on the 11th Sedalia experienced a very heavy rain and hail-storm. The storm was accompanied by a severe gale, which was of short duration. The galvanized iron cornice on the north side of the new court house was blown off. Rain fell in torrents, the sewers proving inadequate to carry off the volume of water.

Vichy Springs, Maries county, Missouri: a considerable part of this town was destroyed by the storm of the 11th. A majority of the residences and many of the business blocks were unroofed and almost completely demolished, but no lives were lost and only four persons were injured.

Green Ridge, Pettis county, Missouri: the village of Green Ridge suffered severely by the storm of the 11th. Houses were moved from their foundations, out-buildings destroyed, fences blown down, and great damage done to fruit and shade trees. The glass in the windows of nearly every building in town, exposed to the fury of the storm, was shattered by hail. No lives were lost, but several persons were injured.

Chicago, Illinois: on the night of the 11–12th a gale occurred at Chicago, doing some slight damage, the wind reaching a velocity of only twenty miles per hour, but in other parts of the state the storm was quite severe. At Chester houses were unroofed, and in many cases completely demolished. At Lanark wind-mills, barns, fences, and frame buildings of various kinds were blown down. The Methodist church at Atwood was struck by lightning, and fruit trees stripped of leaves by the hail. At Buena Vista the school house, residences, and stores in all parts of the town were badly damaged.

Logansport, Indiana: during the afternoon of the 12th a severe thunder-storm, accompanied by high wind and hail, occurred at this place. Many houses were unroofed and several were struck by lightning. Although the storm continued but half an hour, it was the most destructive that has visited this place for many years.

Lebanon, Warren county, Ohio: a severe thunder-storm, attended by heavy rain, hail, and wind, occurred at this place at 10 p. m. of the 12th. Several buildings were unroofed and telegraph communication cut off.

Winchester, Virginia: a disastrous thunder-storm, accompanied by high wind and hail, occurred at this place on the 12th. The wind attained great velocity, and hailstones, some the size of walnuts, fell to the depth of two inches, stripping trees of their foliage, and breaking window glass. The rainfall was very heavy, washing the streets and filling cellars.

Variety Mills, Nelson county, Virginia: the volunteer observer here reports as follows: The period between the 11th and 15th was marked by great meteorological activity. The rainfall in the central and northeast parts of the county was enormous, and numerous thunder-storms occurred. From 3 a. m. to 4.30 a. m. of the 13th the discharge of electricity was almost incessant.

The storm of the night of the 12–13th was very destructive to property in Madison, and other counties of Kentucky. The rainfall was very heavy, causing streams to overflow and submerge many farms. In Fayette county the flood is described as a water-spout. In Clinton county the chief damage was caused by wind; five barns were destroyed and much timber was prostrated. Butler county also sustained great damage by wind. Fifty feet of the Woodsdale bridge over the Miami River were blown off. In the village of Seven Miles the streets were rendered impassable by fallen trees. The public school building was badly damaged, and the roof of a church was thrown against the parsonage, crushing its walls.

Sandusky, Sandusky county, Ohio: during the night of the 12–13th the inhabitants of the eastern part of this county suffered a loss of about $75,000 from the effects of a heavy wind, accompanied by rain. Large trees were blown down, houses destroyed, and many persons injured. At Bellevue large hail-stones fell, killing swine, sheep, and fowls, and breaking windows. This storm also did considerable damage in Erie county, where it was accompanied by the characteristics of a tornado.

Shawnee, Perry county, Ohio: a disastrous storm occurred at this place on the night of the 12–13th, doing damage to the extent of several thousand dollars. The railroad entering this town was washed out at places, causing a delay of trains. Two residences were struck by lightning and badly wrecked. The lower part of the town was flooded and many persons narrowly escaped drowning.

Wilmington, Clinton county, Ohio: the storm of the night of the 12–13th began at this place at about 10 p. m. Trees, barns, and houses were blown down or much damaged.

Circleville, Pickaway county, Ohio: a severe wind-storm, with heavy rain,

passed over this county on the night of the 12–13th. Trees and telegraph wires were blown down at this place. The damage to property was more extensive in the surrounding country.

Long Branch, New Jersey: the storm of the 13th was felt severely along the northern coast of New Jersey. The beaches for miles were badly washed and much damage was done to the valuable bluff fronting the ocean drive-way.

Tipton, Tipton county, Indiana: during the storm of the 13th the buildings on the fair grounds were blown down and many private residences in the town badly wrecked, killing one person and wounding others. Numbers of horses and cattle were killed by falling trees. In White county the wind was disastrous in its effects, many farms being left without buildings or orchards, and much stock was killed.

Albion, Calhoun county, Michigan: a heavy wind and rain storm occurred at this town at 5.30 p. m. on the 14th, flooding the streets in ten minutes after it began. Five stores were unroofed and their contents damaged by rain.

Fredericksburg, Virginia: the storm of the 14th did considerable damage in this vicinity. Crops, fruit trees, and gardens were destroyed or injured by wind, rain, or hail. Along the north bank of the Rappahannock River, from Leedstown, in Westmoreland county, to the mouth of the river, farm property was damaged by flood and wind.

Saint Louis, Missouri: about 6 p. m. of the 14th a heavy rain and wind storm passed over this city, coming from the west. The rainfall was very heavy, 3.30 inches falling during the storm. All the low land in the city was flooded, and cellars and basements partially filled, doing great damage to their contents.

Lancaster, Fairfield county, Ohio: a destructive storm of wind and rain occurred at this town and vicinity on the night of the 14–15th. A number of business houses and residences were unroofed and two school buildings damaged. In the streets were scattered portions of trees and the débris of buildings. Reports from the surrounding country show great injury to wheat and other crops.

By reference to the descriptions of storms, etc., in this REVIEW, under the headings of "Local storms and tornadoes," "Floods," and "Hail," it will be seen that the most severe atmospherical disturbances of the month occurred during the prevalence of this area of low pressure.

VI.—When the low area previously described was central over northern Illinois, number vi appeared to the north of Manitoba and moved southward over Minnesota, while a secondary depression formed over eastern Kansas and moved northeastward over Iowa. This depression was trough-shaped and moved slowly eastward during the 13th, crossing the Mississippi Valley, with the principal depression moving southward from Minnesota to central Illinois, and a secondary depression moving eastward north of the upper lake region. During the 14th this storm increased in energy, and moved slowly to the northeastward, north of the Ohio Valley, attended by general rains and severe storms from Tennessee and Arkansas northward to the Lake region. On the 15th it moved slowly down the Saint Lawrence Valley, attended by increasing pressure at the centre of disturbance. This storm attained its maximum energy while passing over the Lake region, the barometer reading a minimum of 29.43 at Montreal, Province of Quebec, on the morning of the 15th. The barometric pressure on the New England coast ranged from 30.00 to 30.13. This disturbance was last observed north of the lower Saint Lawrence Valley, apparently moving to the northeast.

VII.—On the 18th this area of low pressure apparently moved northward over the Gulf of Mexico, causing dangerous winds on the east Gulf coast. It moved slowly northward over Mississippi and northern Alabama during the 18th, 19th, and 20th, the barometric gradient being very slight. The centre of depression was located approximately by the directions of winds at neighboring stations. This area disappeared on the 21st in southern Alabama, although the succeeding tri-daily reports show local storms in Georgia and Alabama on that date.

VIII and IX.—These areas of low pressure probably passed from the north Pacific coast eastward to the Atlantic north of the stations of observation. They followed each other with an interval of thirty-two hours, moving eastward in the same latitude, and were attended by no marked change in the weather conditions within the United States, except in the region west of Lake Superior. They appeared north of Montana, and on the mornings of the 18th and 19th, respectively, and they disappeared on the 21st, north of the Saint Lawrence Valley.

X.—Number x was located east of, and near, the New England coast on the afternoon of the 25th. The tri-daily reports on the 24th and morning of the 25th indicate the presence of a feeble depression on the middle Atlantic coast. The movement was slowly to the northward, and at midnight of the 24th the centre of this disturbance was apparently over eastern New York. Between midnight of the 24th and 7 a. m. of the 25th the movement was easterly, but on the afternoon of the 25th it was clearly defined as a disturbance of considerable energy. It moved northward to Eastport, Maine, and thence northwestward during the succeeding sixteen hours, when the centre moved to the west of the Saint Lawrence River, near Father Point, Province of Quebec. During this northwest movement the barometer fell from 29.42 to 29.26, and dangerous winds occurred at stations within the disturbance; the winds also reached velocities ranging from thirty to forty-four miles per hour on the New England coast. This storm apparently moved northward from the Saint Lawrence Valley, although a secondary depression formed to the southwest on the 27th, and passed directly eastward to the New England coast.

XI.—Number xi appeared north of Manitoba on the morning of the 28th. It remained north of the stations of observation, moving slightly to the south of east until it reached the meridian of Washington, and latitude 49°, after which the course changed to the north of east, and it passed beyond the limits of the stations during the 30th. It was at no time central within the United States. When the centre reached the most southerly point of its course stong westerly winds occurred in the upper lake region. The barometer was below 29.50 in Manitoba when the depression passed over that section, and it was above 29.70 when the centre was in the lower Saint Lawrence Valley.

NORTH ATLANTIC STORMS DURING MAY, 1886.

[*Pressure in inches and millimetres; wind-force by Beaufort scale.*]

The paths of the depressions that have appeared over the north Atlantic Ocean during the month are determined, approximately, from international simultaneous observations furnished by captains of ocean steamships and sailing vessels; abstracts of ships' logs and other data collected by the Signal Service agencies at the ports of New York, Boston, and Philadelphia; reports received through the co-operation of the "New York Herald Weather Service;" abstracts of ships' logs furnished by the proprietors of the "New York Maritime Register," and from other miscellaneous data received at this office up to June 21, 1886.

Of the ten depressions traced during the month, one, number 9, is a continuation of areas of low pressure traced on the North American continent; number 1 first appears off the coast of the United States in N. 34°; number 2 is a continuation of depression number 11, described as a north Atlantic storm for April, 1886; number 3 developed near N. 36°, W. 47°; numbers 4 and 5 originated over the ocean west of W. 55°; number 6 is first charted in N. 55°, W. 24°; numbers 7 and 9 appeared off the southeast coast of Ireland, and number 10 is traced off the northwest coast of Spain.

The following presents the characteristics of the depressions traced for the present month as compared with those traced over the north Atlantic for May, 1885:

In May, 1885, ten depressions were traced; the general direction of the movement of the storm-centres being east-northeasterly, excepting those which first appeared near the British coasts; these moving south of east. East of the fiftieth meridian the tracks were located within a path bounded by N. 40° and N. 55°.

In May, 1886, the positions of storm-tracks were greatly diversified, extending from N. 36° to N. 60° from the fiftieth meridian to the European coast; their general direction being east-northeast, with a rather rapid rate of progression, except in the case of depression number 1, which made slow progress after passing the thirty-fifth meridian. One depression, number 8, disappeared over the ocean northeast of Newfoundland, and one, number 4, pursued a southerly course from N. 37°,